# Online Learning for the Left-Behind Generation

**Donna Wake:** University of Central Arkansas **Gary Bunn:** University of Central Arkansas

Teacher education programs have increasingly embraced online education, and the number of candidates enrolled in distance coursework is rising. In response to changes in delivery methods brought about by this trend, programs seek to deliver content via distance learning options in ways that demonstrate pedagogical best practices. Through an authoethnographic approach, this study reflects on the experiences of two teacher education faculty members, the challenges that they and their students faced, and the efforts they made to improve their online instruction. Faculty identify candidate expectations, prior experiences, and needs with online formats and make recommendations for effective online course delivery.

Colleges of education have experienced a push to increase online programming. Universities see online delivery as a means to increase revenue by reaching more students across a wider geographical population and by reaching more students with nontraditional schedules (Caywood & Duckett, 2003; Gillett, Cole, Kingsbury, & Zidon, 2007). Candidates are requesting instruction via online formats for convenience, for the potential to provide individualized and personalized experiences, and for the possibility for quick feedback (Gillett et al., 2007).

Teacher education faculty working in online course environments have struggled to define best practices pedagogy and to build authentic learning experiences for teacher candidates without the ability to directly model or capitalize on interactions that occur in the classroom context (Daves & Roberts, 2010; Gillett et al., 2007). Faculty teaching in initial licensure programs face the added concern of modeling best practices for candidates who will themselves most likely teach in face-to-face settings. In other words, how can we show our candidates how to "walk the walk" if we may be limited to merely "talking the walk"?

As the authors of this study shifted their practice to more online formats, they enacted an autoethnographic needs analysis to examine the online teaching experience. Specifically, the authors focused on the tensions felt between faculty expectations and candidate' abilities, efforts, and know-how. While our experiences were initially frustrating (e.g., why can't they do this?!), what we realized was that this was an area of opportunity for us (they struggle here so what can WE do to help them grow and develop?). Based on this analysis, we offer recommendations for engaging and supporting teacher candidates and for advancing best practices online pedagogy.

# **Theoretical Framework**

Teacher education faculty may have concerns about the effectiveness and quality of coursework delivered via online formats including the level of mastery reached by learners and the rigor of online courses and programs. If a course is designed well, there may be no significant difference between traditional classroom and distance learning education in terms of student acquisition of content (Caywood & Duckett,

2003). However, poor course design is common and can impede student learning (Gillett et al., 2007).

Faculty concerned with promoting constructivist instruction have increased anxiety about modeling these approaches in online environments (Daves & Roberts, 2010; Gillett et al., 2007). Constructivist pedagogy values engaging, active, and participatory learning experiences which provide the learner with a sense of voice and ownership (Bedenbaugh, 2007). Constructivism supports learners in actively building their own understanding of the world around them as they draw from multiple sources of information, solve problems, engage in inquiry, dialogue with others, and construct their learning in a social network (Robin, 2005).

# Effective Online Course Models

Constructivist approaches to learning can be supported by online learning environments if those environments are designed well. In fact, online learning may be ideal for promoting constructivist pedagogical approaches (Dobozy, 2009). Successful online courses take advantage of social, participatory, and constructive learning approaches (Bedenbaugh, 2007; Dobozy, 2009; Zeegers, Deller-Evans, Egege, & Klinger, 2008). These courses promote skills such as the ability to synthesize large amounts of information and the ability to collaborate with team members (Caywood & Duckett, 2003). In these courses, students are encouraged to think critically and to apply their knowledge to real world situations (Kuh, Kinzie, Schuh, & Whitt, 2005). Faculty and students in these courses feel a shared responsibility for creating a learning community that results in an increased level of satisfaction with the course. In fact, students feel that effective online courses are a form of social practice or social media and feel these courses create the same or an increased level of social connectedness as a face-to-face class (Daves & Roberts, 2010).

An important aspect of successful online learning is the ability of the students to set high expectations for themselves. The responsibility for learning in online formats is clearly on the learner. For students to gain from the online experience, they must reach beyond minimal engagement and be more than passive receivers of information (Bosch, Hester, MacEntee, MacKenzie, Morey, & Nichols, 2008; Daves & Roberts, 2010). They must communicate well. They must support one another. They must find and use available resources. They must problem solve. They must engage critically. And, they must reflect.

# The Left-Behind Generation

The problem with the requirements described above lies in the fact that online learning is not for every learner. Some learners report that they do feel isolated in online learning environments. They indicate a lack of engagement and admit to minimal involvement and interaction with the course and with other students (Dobozy, 2009; Hill, Raven, & Han, 2002).

In particular, the demands of successful online learning environments may work in opposition to the expectations and experiences of the current generation of students entering college. Goodwin (2013) contends that the effects of the No Child Left Behind era have resulted in students who are not prepared to think critically, read rigorously, write articulately, or work independently. This result is due in part to the culture of test taking and teaching to the text that has controlled the current educational culture and has promoted traditional and didactic teaching models geared to teaching to the test (Cope & Kalantiz, 2009; Wink, 2010).

Students accustomed to didactic instructional environments may have learned to 'play student' to comply with requirements rather than to gain deep understanding of content. They may have shallow content engagement and may be

extrinsically motivated (Bunn & Wake, 2015). They exert less effort, do not initiate action, prefer passive learning styles, prefer to be "given" the answers, seem to 'give up easily', do not face challenges, expect to be assessed using simple assessments, and avoid non-assessed learning tasks (Dobozy, 2009).

Learners accustomed to didactic practices may lack the skills to conduct research, to hold and defend an opinion, to engage in self-expression, or to reflect on content or on their performance (Gillett et al., 2007; Goodwin, 2013). Additionally, they may not have the technology skills required for online learning; or, if they do possess these skills, they may not have the ability to use these skills in educational contexts and to support educational purposes in their roles as students or as future teachers (Wake, 2013).

In short, teacher education candidates entering the field are representative of the "left behind" generation. While these students "want it now" and want instruction to be personalized and individualized, they may not have the skills or the mindset to engage in the type of learning required in online environments such as critical thinking, reflection, and written communication (Gillett et al., 2007). Yet, these skills are necessary for success in many disciplines, and certainly these skills are indispensable for effective teachers in the field.

# Method

In this descriptive study, the researchers used an autoethnographical approach analyzing their personal experiences in order to "retrospectively and selectively write about epiphanies that stem from, or are made possible by, being part of a culture..." (Ellis, 2004; Ellis, Adams, & Bochner, 2011, n.p.). In this instance, the researchers are faculty members from a southern, comprehensive teaching institution working in a nontraditional, initial teacher licensure program. With minimal faculty input, the program was moved to an

online delivery system due to a university-wide initiative resulting in a 53% increase in program enrollment.

Over the course of a semester, the researchers analyzed their own experiences and responses to moving to online course formats by systematically collecting relevant observations. These observations were methodically archived and analyzed to provide qualitative data. The researchers also collected information from their candidates about their online experiences expressed via digital journal entries, blog posts, course evaluations, or personal communications shared through email, texts, tweets, and Facebook posts.

The researchers analyzed the data using qualitative approaches in line with Chang's (2008) recommendations that data collection and analysis consider recurring topics or patterns, connections of present experiences with past ones, and a comparison of the researchers' experiences with others in an effort to identify "emerging themes, salient patterns, and mini and grand categories" (p. 131).

Throughout the study the researchers met to compare notes and experiences. Themes were defined throughout the data collection process with some themes defined early and then validated through the presence of recurring, supportive evidence. Themes defined in the ongoing study without recurring evidence were re-examined and modified or discarded as necessary. Chang (2008) suggests, "Data analysis begins while data collection is still in progress, and analysis facilitates the collection of more relevant and meaningful data" (p. 61-62). Since this study involved the researchers' own practice while it was in progress, noting new evidences of the identified themes happened simultaneously while the researchers also remained cognizant to the possibility of new themes.

Other themes in the data were defined after the collection period ended as the researchers analyzed the data again in a separate evaluation of the entire data set using constant comparative analysis. By comparing data the researcher is able to develop a theory inductively, including categorizing, coding, delineating categories and connecting them. Leech and Onwuegbuzie (2007, 2008) noted that constant comparative analysis is used to analyze many types of data and is appropriate for the analysis of qualitative data sets. According to Onwuegbuzie, Dickinson, Leech, & Zoran (2009), three major stages characterize the constant comparative analysis: (a) open coding, (b) grouping into categories, and (c) selective coding. This process allows the data to be analyzed inductively in order to yield emerging pattern(s) that lead to theory generation.

Throughout the process, the two researchers conferred to compare and contrast their findings and to create the codes and categories with the goal of agreement using joint-probability. These codes and categories were used to define broader themes reflective of the data.

## **Results**

The researchers examined their experiences for emergent themes while transitioning from exclusively face-to-face teaching to an online delivery method. Four dominant themes emerged in the data set: communication, efficacy, minimalism, and critical thinking (Table 1). The researchers noted in their work with teacher education candidates that communication was a significant theme reflecting an area of concern inclusive of 53.23% of all coded data. Candidates appeared to be struggling in online environments with the coursework demands of reading and writing. Additionally, faculty shared concerns about candidates' abilities to write professional communication (e.g., email, discussion boards).

Candidate efficacy was also a noted theme in the data set inclusive of 25 9% of all coded data

Researchers noted in this area that candidates were struggling to be resourceful and their persistence in approaching and completing tasks were of concern. The researchers also noted that 8.6% of all coded data focused on candidates' minimalist approaches to their coursework either as a concern expressed by researchers or by candidates' own self-admission. Finally, candidates' critical thinking was a topic of 6.47% of all comments.

### Discussion

### Communication

Data collected in the study indicated that candidates struggled with reading comprehension, writing, and professional communication.

Reading Comprehension. Candidates' abilities to comprehend basic reading assignments appeared to be problematic and to reflect shallow or minimal evidence of having read the required passages. Yet, the assumption that these candidates were invested in their coursework was prevalent in both of the researchers' responses indicating that other factors may be confounding candidates' reading success. Instead, candidates' experiences with reading expectations in their previous coursework and candidates' existing knowledge base for their new discourse appeared to be contributing factors.

Candidates' indicated that in their previous school experiences, they were "told" the content they needed to know in class lecture as a recap of the assigned reading. This expectation led candidates to not read deeply or critically. Unfortunately, with online learning, the expectation that they read was more pressing and immediate as their scores hinged on evidence that they had done the work of reading up front. Candidates appeared to be struggling at times to meet this demand. This is reflected in the following comment made by a student in a course evaluation: "Everything we did in this

class, including assignments, I felt we had to teach ourselves. Why have a teacher if we teach ourselves!"

The researchers found that candidates' lack of prior experiences with the discourse was an inhibiting factor in their reading comprehension. Simply put, it is much more difficult to read and comprehend text for which one has little background knowledge. These candidates had entered the teacher education program for the purpose of changing careers, and they had little to no background in the education profession. The readings presented to them in their education coursework represented an entire new discourse as evidenced by this course evaluation comment, "During the first few classes I was always confused. The instructor used educational terms and acronyms that I was unfamiliar with. I wish they were in the syllabus."

Given these findings, the researchers made several recommendations for program and course revision to support students' reading success: 1) select texts that include clear presentation of information targeted at novice learners, apparent frameworks and guiding structures, evident support structures (e.g., glossaries, visuals), and more narrative formats; 2) focus candidates' reading efforts by creating guiding questions, graphic organizers, or note taking guides as appropriate; 3) build candidates' prior knowledge before they read the text and thus flip the traditional instructional process of read-discuss to reflect a more cohesive discuss-read-discuss again structure; 4) provide candidates with strategies and resources to help support their reading; 5) make clear to new candidates the expectations for graduate level reading.

Writing. The data indicated that candidates' abilities to compose accurate and acceptable writing for their assignments was often problematic including many mechanical and grammatical errors (e.g., confusing theretheir-they're). Candidates' written responses to

informal and formal writing assignments alike were discouraging. Informal assignments included posting and responding to peers on discussion boards and online blogs and working together in wikis. Their formal assignments included a range of requirements including formal research papers to lesson plans and lesson plan analyses.

In the data set, the candidates were candid with the researchers in terms of their writing skills. Many professed to be fearful of writing or to recognize that their writing might be sub-par given graduate program expectations. Others admitted to approaching their writing with a minimalist attitude, such as this comment posted in a blog response, "In most of these blog assignments, I have read the chapter, wrote (sic) my blog, and wrote (sic) on two others without really processing the information."

Given these findings, the researchers made several recommendations for program and course revision to support students' writing: 1) require identified candidates to work directly with the university's writing center; 2) provide exemplar models to the learners; 3) provide workshops on "graduate level writing" and on "academic writing"; 4) make clear to new candidates the expectations for graduate level writing in the online program information and in the program orientation meetings.

Professional Communication. Finally, the data indicated a concern with candidates' professional communications (e.g., emails). Many of the emails received from students are simply too informal or are inappropriate in tone and message. The data set included several instances of faculty working with candidates to address other professionals with honorifics such as Mr., Ms. or Dr. and that to begin an email with the salutation, "Hey," is not appropriate. Recommendations for addressing these issues include: 1) working on a case-bycase basis with individuals when infractions are noticed; 2) modeling professional email communication with students; and 3) make

clear to new candidates the expectations for professional communication.

Efficacy. The researchers also identified a set of behaviors classified as "efficacy" related constructs such as resourcefulness and learner initiative and persistence. While faculty are always keen to assist and support students, our ability to find a balance between assisting and enabling is a balancing act where we feel we walk a fine line in our interactions with candidates.

Resourcefulness. Candidates in the program of study evidenced a lack of resourcefulness concerned program faculty beginning with the point of their inquiring about the program of study throughout their coursework to the point of graduation. Our learners seem unable or unwilling to search for resources, to research answers to their questions, or to inform themselves of program or course requirements. They rely on others to solve problems. They ask faculty questions that are already readily available on the program and course websites. They claim an ignorance of program policy and/or course requirements.

The researchers felt that candidate's prior didactic educational experiences may have predisposed them to a learned helplessness; however, candidates' novice status is also a critical component to consider here. Candidates' lack of prior knowledge may limit their approaches to new topics or questions and may limit their ability to locate information and conduct research.

Ironically, the program and faculty may engender some of our candidates' learned helplessness by being too quick to answer questions or "fix" the problem for them rather than scaffolding them through doing the work on their own. In part, this may be a function of the time and pressure faculty feel in their daily work. It may seem easier to simply "answer" or "fix" candidate concerns rather than guide

them through the process. Possibly, the nature of educators as nurturers may also translate to more hand-holding than would occur in other professions.

Recommendations to support candidates in developing their resourcefulness include:

1) faculty be more conscious about how much help and what type of support they offer a candidate; 2) faculty be more transparent about communicating with learners when they see these concerns as well as what their expectations for their learners are in this category; 3) use strategies with candidates such as (e.g., Ask 3 before you ask me); 4) use a program wide disposition rubric including criterion for resourcefulness.

Initiative and Persistence. Accompanying candidates' lack of resourcefulness is their reaction to experiencing challenges or impediments in their path, is their reluctance to persist in their own growth, to persist in learning through engaging in self-reflection, and to persist in seeking and considering constructive feedback, expecting instead to be told that their work is always exemplary.

One example of this lack of initiative and persistence, one student wrote, "I did not know who to reach out to talk to. I wanted to know what additional courses or Praxis tests I would have to take to do ESL.... I tried searching the UCA website, but I was still unsure of all of it." Sadly, if the candidate had visited the university website and simply entered the term "ESL" in the search function, the information she sought is found in the first link that is listed.

In considering self-reflection, one candidates supported our concerns in this area by writing, "I think I am acceptable when it comes to self-reflection. I know my limitations and strengths but I do not take criticism very well. I listen but in my mind I am still thinking 'I am right' and 'I'm the type that likes to be told what to do to fix

it, though, instead of finding ways to remedy it myself".

Recommendations to support candidates in addressing developing initiative and persistence, particularly through reflection, include: 1) faculty be more conscious about how much help and what type of support they offer a candidate; 2) faculty be more transparent about communicating with learners when they see these concerns as well as what their expectations for their learners are in this category; 3) use a program wide disposition rubric including criterion for persistence, initiative, and self-reflection including response to criticism.

Minimalism. The researchers were concerned that candidates perceived online learning as easier or less intensive than face-to-face coursework. When polled, candidates reported that online classes should require 1 to 2 hours of work per week. This is in sharp contrast to faculty expectations of 5 to 6 hours per week if we consider the three hours of physical class time that would have been required in a face-to-face class plus the work to prepare for that class meeting.

In addition to learners' low expectations for online coursework, many candidates also openly admit in their disposition reviews that they did the bare minimum expected of them in their coursework and that they preferred passive over active engagement. This attitude seems exacerbated by the lack of physical contact required of a traditional class. One candidate commented, "My participation for Blackboard discussions is minimal. I believe I learn better by just listening (or reading) from others versus actively participating in discussions." The reasons given for reduced performance include the demands of an adult life that required them to juggle school, work, and family (Bunn & Wake, 2015).

Recommendations for supporting candidates in this area include: 1) open communication with candidates about the work expectations of each course, 2) guidelines for the program stating the work expectations published on the website and shared in a program orientation, 3) program established attendance and late-work policies, and 4) a requirement for each major assignment that candidates self-evaluate on a checklist or rubric as a part of their submission.

Critical Thinking. Candidates' critical thinking skills were another concern the researchers shared. Critical thinking includes the abilities to analyze facts, generate and organize ideas, defend opinions, make comparisons, draw inferences, synthesize and evaluate information drawn from experience, reflect, consider diverse perspectives, and solve problems (Osana & Seymour, 2004; Ostorga, 2006; Schellens, Van Keer, De Wever, & Valcke, 2009; Wang, Woo, & Zhao, 2009). Critical thinking is implicitly connected to knowledge construction, a personal process that involves accommodating new experiences and information into existing cognitive structures (Huang, 2006; Wang, Woo, & Zhao, 2009).

Analysis and Synthesis. The researchers in this study saw many instances where candidates simply were not approaching their assignments with the required depth of analysis. One example in this area is a recent lesson plan submitted by a new candidate who identified the following standard to underpin her lesson – Analyze the causes of World War I (e.g., alliances, imperialism, nationalism, militarism) – and then proceeded to write objectives and lesson activities focusing on the outcome of the war. Another candidate chose the following standard for her lesson - Recognize and name all upper- and lowercase letters of the alphabet – and then wrote her objective as Read Fluently (sic) by adjusting reading rate. A final example is an instructional plan written for a seventh grade mathematics lesson that identified linguistic intelligence as

the only Gardner connection to be found in her mathematics lesson

In part, candidates' abilities to think analytically were a result of their novice status in the discourse (Wake & Bunn, in press). However, the researchers propose research-based recommendations for scaffolding candidates in their including: 1) supporting candidates to better identify what they do know and then teach them how to build from this base and 2) creating constructivist spaces for candidates to work together through new material requiring heterogeneous groups to advance the learning of all group members through discussion, negotiation, sharing, formative feedback, and peer critique (Huang, 2006; Ochoa & Robinson, 2005; Wang, Woo, & Zhao, 2009; Wentworth, 2007).

**Creativity**. The researchers also identified the need to support candidates in thinking creatively. We feel our candidates are very anxious about assignments that deviate from expected and traditional school-based formats such as research papers and multiple choice tests. Our candidates routinely express disbelief that our graded assignments include blogs, wikis, reflections and self-evaluations. Furthermore, when these assignments are open-ended and allow for freedom of representation and expression, a majority of candidates revert to tried and true familiar formats either because of an unwillingness or inability to think outside the box or because thinking creatively might require more effort

Recommendations to enhance or promote student creativity include: 1) building more openended assignments that challenge them to move outside of their comfort zone, and 2) repeating open-ended assignments throughout the semester so that more creative students can serve as models for those who struggle with creativity.

**Diversity**. Finally, the researchers for this study are concerned that the candidates' lack

of face-to-face involvement and collaboration might inhibit their ability to attend to diverse perspectives and experiences represented among their peers. This example was drawn from candidates' self-reflections in their introductory course as one candidate wrote, "There would be moments when I was totally closed minded to the thoughts and beliefs of my peers. While these thoughts were never voiced, I did not consistently respect the viewpoints of others."

Collaboration is a desirable disposition to cultivate in teachers (Malm, 2009; Mullin, 2003; Singh & Stoloff, 2008) allowing teachers opportunities to reflect, share, and revisit beliefs on teaching and learning (Musanti & Pence, 2010). Teacher candidates form unique and diverse communities of practice that allow them to analyze prior and current experiences and construct their views of teaching and learning (Osana & Seymour, 2004; Ostorga, 2006).

To engender true collaboration that promotes diverse perspectives and experiences, the technology of the online course must be used to create a genuine learning community where candidates critically engage with one another and the content (Parks, 2009). Recommendations to support candidates in this work include: 1) using online tools that promote collaboration (e.g., discussion boards, chats, wikis, blogs); 2) scaffolding candidates in constructive exchanges that promote diverse perspectives that involve giving/receiving constructive critique, posing multiple viewpoints, asking questions and providing recommendations (Ochoa & Robinson, 2008; Wake & Modla, 2012); and 3) talk around concrete artifacts, such as lesson plans or learner products shared in the online spaces, may increase the quality and quantity of substantive feedback shared among diverse individuals (Meirinka, Imantsb, Meijerc, & Verloopa, 2010).

### Conclusion

Our examination of the culture of online learning has highlighted one finding that is particularly valuable – the candidates' demand for the flexibility and convenience of online learning does not match their responses to online learning. Many candidates demonstrate less effort and seem to misinterpret the online approach as an easier option to the traditional delivery method. As such, candidates either misjudge the effort needed, their own preparedness for graduate level work, or the level of performance expected.

Our analysis of our candidates' challenges in online environments is critical to our ability to meet their needs and support them in entering the profession. Our identification of these areas of concern are a means for us to analyze our own practices and to find ways to support our candidates as they transition into graduate coursework and into their newly chosen professions.

The researchers' examination of their own experiences yielded four primary areas where our expectations as faculty and candidates' abilities did not match: poor or inappropriate communication skills, lack of efficacy, minimalist approaches to coursework, and undemonstrated critical thinking skills. While initially frustrating (e.g., why can't they do this!), we realized that this was an area of opportunity for us (they struggle here so what can WE do to help them grow and develop?).

In an effort to avoid these concerns themselves, the researchers have sought approaches and made recommendations to support candidates' growth in these four areas. While some have been more successful than others, the researchers recognize that the trend for online learning is not reversing and that these issues must be addressed head-on. The recommendations offered in this paper represent

steps to better support candidates in online course and program formats.

One unanticipated outcome of moving into online delivery was quickly discovered by program faculty. Put bluntly, candidates who showed more difficulty in the four areas noted in this study were actually more visible in an online environment than in our traditional coursework. While candidates attending a traditional class may be able to "fly under the radar" through attendance and some semblance of engagement, these same candidates who were less able or less willing to do the coursework became apparent very quickly which enabled faculty to identify them earlier and to work with them more quickly. This allowed us to work with these candidates to either offer remediation or to counsel them out of the program. In the end, the realization that no student can sit silent in an online class may work in our favor as we develop only those candidates who demonstrate the willingness, capacity, and tenacity to be a classroom teacher.

### References

- Bedenbaugh, L. (2007). Educational uses of digital storytelling. Retrieved from http://flare.ucf.edu/FLaRE Presentations.htm.
- Bosch, W. C., Hester, J. L., MacEntee, V. M., MacKenzie, J. A., Morey, T. M., Nichols, J. T. (2008). Beyond lip service: An operational definition of "learning-centered college." Innovative Higher Education, 33(2), 83-98.
- Bunn, G. & Wake, D. (2015). Motivating factors of nontraditional post-baccalaureate students pursuing initial teacher licensure. The Teacher Educator, 50(1), 47-66. Retrieved from http://www.tandfonline.com/toc/utte20/current#/doi/full/10.1080/08878730.2014.975304
- Caywood, K., & Duckett, J. (2003). Online vs. oncampus learning in teacher education. Teacher Education and Special Education, 26(2), 98-105
- Chang, H. (2008). Authorthnography as method. Walnut Creek, CA: Left Coast Press.

- Cope, B., & Kalantzis, M. (2009). 'Multiliteracies': New literacies, new learning. Pedagogies: An International Journal, 4, 164-195.
- Daves, D. P., & Roberts, J. G. (2010). Online teacher education programs: Social connectedness and the learning experience. Journal of Instructional Pedagogies, 4(10), Retrieved from http://www.aabri.com/jip.html.
- Dobozy, E. (2009). Are teacher education students ready for online learning? Teaching English with Technology, 1, 9 (2), 1-15. Retrieved from http://www.tewtjournal.org/VOL%209/ISSUE%202/Paper1.pdf
- Ellis, C. (2004). The Ethnographic I: A methodological novel about autoethnography. Walnut Creek, CA: AltaMira Press.
- Ellis, C., Adams, T. E., & Bochner, A. P. (2011). Autoethnography: An overview. Forum: Qualitative Social Research. Retrieved from http://www.qualitative-esearch.net/index.php/ fqs/article/view/1589/3095
- Gillett, E., Cole, L., Kingsbury, L., & Zidon, M. (2007). Successful online learning in teacher education: What do teachers and students need? Teaching and Learning: The Journal of Natural Inquiry and Reflective Practice. Retrieved from http://web.mnstate.edu/colela/TOPOST.pdf.
- Goodwin, M. (2013). Law professors see the damage done by 'No Child Left Behind.' The Chronicle of Higher Education. Retrieved from http://chronicle.com/blogs/conversation/2013/03/12/law-professors-see-the-damage-done-by-no-child-left-behind/
- Hill, J. R., Raven, A., & Han, S. (2002).
  Connections in web-based learning environments: A research-based model for community building. The Quarterly Review of Distance Education, 3(4), 383 393.
- Huang, G. H. (2006). Informal form: Fostering active learning in a teacher preparation program. Education, 127(1), 31-38.
- Kuh, G. D., Kinzie, J., Schuh, J. H., Whitt, E. J., & Associates. (2005). Student success in

- college: Creating conditions that matter. San Francisco: Jossey-Bass.
- Leech, N. L., & Onwuegbuzie, A. J. (2007). An array of qualitative data analysis tools: A call for qualitative data analysis triangulation. School Psychology Quarterly, 22, 557–584.
- Leech, N. L., & Onwuegbuzie, A. J. (2008).

  Qualitative data analysis: A compendium of techniques for school psychology research and beyond. School Psychology Quarterly, 23, 587–604.
- Malm, B. (2009). Towards a new professionalism: Enhancing personal and professional development in teacher education. Journal of Education for Teaching: International Research and Pedagogy, 35(1), 77-91.
- Meirinka, J. A., Imantsb, J., Meijerc, P. C., Verloopa, N. (2010). Teacher learning and collaboration in innovative teams. Cambridge Journal of Education, 40(2), 161-181.
- Mullin, D. (2003). Developing a framework for the assessment of teacher candidate dispositions. ED479255.
- Musanti, S. I., & Pence, L. (2010). Collaboration and teacher development: Unpacking resistance, constructing knowledge, and navigating identities. Teacher Educational Quarterly, 37(1), 73-89.
- Ochoa, T. A., & Robinson, J. M. (2005).

  Revisiting group consensus: Collaborative learning dynamics during a problem-based learning activity in education. Teacher Education and Special Education, 28(1), 000-000.
- Onwuegbuzie, A., Dickinson, W., Leech, N., & Zoran, A. (2009). A qualitative framework for collecting and analyzing data in focus group research. International Journal of Qualitative Methods, 8(3), 1-21.
- Osana, H. P., & Seymour, J. R. (2004). Critical thinking in preservice teachers: A rubric for evaluating argumentation and statistical reasoning. Educational Research and Evaluation, 10(4-6), 473-98.

- Ostorga, A. N. (2006). Developing teachers who are reflective practioners: A complex process. Issues in Teacher Education, 15(2), 5-20.
- Parks, A. N. (2009). Collaborating about what? An instructor's look at preservice lesson study. Teacher Education Quarterly, 34(4), 81-97.
- Robin, B. (2005) Educational uses of digital storytelling. Retrieved from http://fp.coe. uh.edu/brobin/homepage/Educaional-Uses-DS.pdf
- Schellens, T., Van Keer, H., De Wever, B., & Valcke, M. (2009). Tagging thinking types in asynchronous discussion groups: effects on critical thinking. Interactive Learning Environments, 17(1), 77-94.
- Singh, D. K., & Stoloff, D. (2008). Assessment of teacher dispositions. College Student Journal, 42(4), 1169-1180.
- Wake, D., & Bunn, G. (in press). Teacher Candidate Dispositions: Perspectives of Professional Expectations. The Teacher Educator, xx(x), xx-xx.
- Wake, D., & Modla, V.B. (2012). Using wikis with pre-service teachers: Promoting collaborative practice and contextual analysis. Journal of Research on Technology in Education, 44(3), 243-265.
- Wake, D. (2013). Teacher candidates' perceptions of technology used to support literacy practices. In J. Whittingham, S. Huffman, W. Rickman, & C. Wiedmaier (Eds.), Technological tools for the literacy classroom (pp. 220-242). Hershey, PA: IGI Global.
- Wang, Q., Woo, H. L., & Zhao, J. (2001). Investigating critical thinking and knowledge construction in an interactive learning environment. Interactive Learning Environments, 17(1), 95-104.
- Wentworth, N. (2007). Inquiry learning and technology. Computers in the schools, 23(3-4), 115-129.
- Wink, J. (2010). Critical pedagogy: Notes from the real world. (4th ed.). San Francisco, CA: Pearson.

Zeeger, P., Deller-Evans, K., Egege, S., & Klinger, C. (2008). Essential Skills for Science and Technology. Melbourne: Oxford University Press.

### **Authors' Note**

Donna Wake is an Associate Dean at the UCA College of Education. Her areas of scholarship include teacher education, technology education, and literacy education.

Gary Bunn is the Director of Candidate Services for the UCA College of Education. His areas of scholarship include teacher education and STEM education.